

REMARKS

Claim 2 has been amended to clarify and better define the invention.

The rejection of the claims under 35 USC §112, first paragraph, is respectfully traversed. The Examiner acknowledges that the specification teaches a template. The specification also teaches protein structures. Thus, the rejection of claims 1 and 15 as introducing new matter in reciting a “template comprising protein structures” is believed to be in error.

Similar comments apply to the Examiner’s rejection to the term “the best fit” and to the term “the structure of template that optimally aligns with the query sequence”. Accordingly, the rejection of the claims under 35 USC §112, first paragraph, is believed to be in error.

Turning to the rejection of the claims under 35 USC §112, second paragraph, the Examiner acknowledges that the specification teaches “one template is aligned to one sequence”. It is submitted the claims therefore are fairly based on the specification.

Turning to the art rejections, the Examiner rejected claims 1, 2 and 15 under 35 USC §102, contending that the Meller et al. document (Proteins: Structure, Function and Genetics: 2001, Volume 45, Issue 3, Pages 241 – 261) discloses all of the elements of these claims. As the Applicants will explain, this clearly is not correct.

In contrasting the subject invention to the Meller et al. document and other prior art references, it is important to distinguish two major steps: (a) designing of energy functions; and (b) threading. The designing of scoring functions and performance of threading are two completely different processes and are performed in isolation from one another.

HAYES SOLOWAY P.C.
3450 E. SUNRISE DRIVE,
SUITE 140
TUCSON, AZ 85718
TEL. 520.882.7623
FAX. 520.882.7643

175 CANAL STREET
MANCHESTER, NH 03101
TEL. 603.668.1400
FAX. 603.668.8567

Meller et al. do use Linear Programming to design scoring functions (a). They do describe the use of threading (b), however, they certainly do NOT perform threading (b) using Linear Programming.

That is, Meller et al. (a) use Linear Programming to design optimal scoring functions, and then (b) do threading from a sequence to a structure using a very common method - dynamic programming and BLAST, which do NOT use Linear Programming techniques. Neither in Table IX nor in "Test of Model" (page 251-255) did they claim that they use Linear Programming to do threading. Clearly they do NOT.

Applicants use Linear Programming to perform step (b), threading. Heretofore, this was not done or known in the art.

The Examiner has also rejected claims 3 - 7, 11 and 13 as being obvious in view of the combination of the Meller et al. and Akutsu et al. documents. Applicants do not agree. The Akutsu et al. reference does not describe the claim limitations in which the Meller et al. reference is lacking (i.e., use of Linear Programming to perform threading).

Thus, a person skilled in the art, considering the Meller et al. and Akutsu et al. references would not be led to the claimed invention.

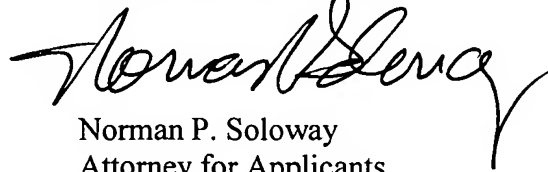
Having dealt with all the objections raised by the Examiner, the Application is believed to be in order for allowance. Early and favorable action are respectfully requested.

HAYES SOLOWAY P.C.
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SUITE 140
TUCSON, AZ 85718
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FAX. 520.882.7643

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MANCHESTER, NH 03101
TEL. 603.668.1400
FAX. 603.668.8567

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Respectfully submitted,



Norman P. Soloway
Attorney for Applicants
Reg. No. 24,315

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HAYES SOLOWAY P.C.
3450 E. SUNRISE DRIVE,
SUITE 140
TUCSON, AZ 85718
TEL. 520.882.7623
FAX. 520.882.7643

175 CANAL STREET
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TEL. 603.668.1400
FAX. 603.668.8567